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Technical Paints

CE-CO

CHEESMAN-ELLIOT CO., INC

PAINT MAKERS

Technical Paints

THE purpose of this booklet is to guide those who have to purchase, requisition or specify paints to, perhaps, a better comprehension of the somewhat intricate subject of Paint Protection, which will aid in obtaining best results; also to make readily accessible our recommendation for many classes of work.

Color Cards and Quotations Will Be Furnished on Request.

"Save the surface and you save all"- Paint & Varnish

Established 1876

CHEESMAN-ELLIOT CO., INC.
PAINT MAKERS
639-47 KENT AVE., BROOKLYN, N. Y.
Works: WILLIAMSPORT, PA. and BROOKLYN

Composition of Paints
Vehicles
Pigments
Use of Paints
Spreading Rates
Spraying
Our Service
Special Paints
Ceilings, Walls
Newlite
Mill White
Tinted Newlite
Special Conditions
Over Water Paint
Dado Paint
Size-Filler
Dulsheen Tints
Cement Floors
Enamel
Dressing
Hardener
Exterior Concrete
Brick, Stucco
Kent Coating
Enamel, Varnish
Wooden Bldgs.
Utility Paint
House Paint
Fire Retardant
Metal
Preservation
Priming
Finishing
Fumes, Acids
'anks (interior)
'enstocks, Etc.
Steel in Masonry
Galvanized Iron
Stacks, Boilers
as Holders, Etc.
tain Preventive
Bituseal
Creosote Sealer
ampsealer
1 Imp. Red
xide
Carbon Black
ridge Paint
luminum Paint
one Paints
oof Coating
ecotite
oiler Settings
achinery Paint
ipe Paints

The Composition of Paints

We print the following brief technical outline to give a better understanding of paint, and an insight to its technical aspects and possibilities.

The composition of paints has two main divisions, which are designated the *pigment* and the *vehicle*.

The term "pigment" is used in a comprehensive sense to designate the entire solid portion of the paint. It is also applied to any one of the several materials which jointly compose the pigment. As an example, the "pigment" or solid part of the paint may be composed of several "pigments", such as white lead, white zinc, silica, and coloring matter like chrome green.

The term "vehicle" is applied to the entire liquid portion of the paint. The vehicle usually consists of oils, varnishes, driers and volatile thinners.

The chief functions of the vehicle are: to constitute a carrier of the pigment, making it possible to (1) distribute the solid pigments evenly in a thin layer over the surface to be painted; (2) to form a binder of the pigments and make the paint adhere firmly to the surface; (3) to form a film, which, reinforced by the pigment, excludes air, moisture and gases, so far as possible, from contact with the material to which the paint is applied; (4) to protect the pigment from various destructive agencies.

The chief functions of the pigment are: (1) by its inert nature to protect the vehicle or binder from destruction by atmospheric and other agencies; (2) to increase the thickness of the film formed by the paint; (3) to give color or reflect light; (4) particularly in the case of steel preservative paints, to prevent by its chemical nature, corrosion of the metal and to check or localize corrosion if once started; (5) to hide the surface on which the paint is used.

As the vehicle and the pigment mutually protect each other, and the various oils and pigments have different characteristics, it is readily apparent that there is no one "best paint" for all classes of work, and that the subject of technical paints is much deeper than many people have realized.

Vehicles Used in Paints

LINSEED OIL, sometimes termed the "King of Paint Oils", retains its standing of many years as the best principal vehicle for general paint purposes. Although for some special purposes other vehicles are superior, linseed oil combines more of the characteristics desired in general paint manufacture than any other. A vegetable product obtained from crushing of flax seed, it dries on exposure to air in a thin film by absorption of oxygen, gradually changing from liquid to a semi-solid. Unless aided by driers (see page 4), several days or weeks might be required for a paint made with pure raw linseed oil to dry. Only in a minor degree does this, or other paint oils, dry by evaporation. A film of dried linseed oil is quite porous, moisture passing slowly through it readily. The addition of pigments reduces this porosity, but does not completely stop it. It saponifies in the presence of alkalies, yellows on exposure in poor light.

Linseed, like other oils, is susceptible to various treatments which modify or alter certain of its characteristics, such as bleaching, bodying, flowing out, discoloration, etc. These treatments are of great importance and through them it is possible to obtain results of a special nature which cannot be obtained by the use of raw or common boiled oil.

CHINA WOOD OIL is obtained from the nut of tung trees grown principally in China, and now being cultivated in the Southern United States. It is not used in its raw state, but after suitable treatments is valuable for varnish and paint making. It is more waterproof and resistant to alkalies when properly treated than linseed oil, does not discolor so badly in white paints, and, when properly treated is an excellent binder and very durable.

SOYA BEAN OIL, obtained from the soya bean, is probably the nearest substitute for linseed oil as a general paint vehicle. A fairly satisfactory exterior paint could be made with it, but it is little used for the purpose, partly because its cost, at this writing, is not an inducement. It is a difficult oil to make dry satisfactorily. It is superior to linseed oil in non-yellowing. It aids elasticity.

PERILLA, POPPY SEED, RAPE SEED, SUN FLOWER SEED, and several other vegetable oils of more or less recent research are utilized principally in the preparation of varnishes and special liquids, advantage being taken of various characteristics shown by each.

MENHADEN FISH OIL. This oil, as a paint component, labors under a somewhat unjust prejudice, as fish oil was for years considered a very inferior material for use in the manufacture of paint, and only suitable for the very cheapest grades of paint. With the use of improved methods of extraction and refinement, high-grade winter pressed menhaden fish oil has been found to have a valuable place in paint manufacture in heat resisting paints and for other special purposes when used in limited quantities in connection with linseed oil and other binders. It is worthy of note that the use of menhaden fish oil is sanctioned by the U. S. Government in many of its paint specifications.

Composition
of Paints
Vehicles
Pigments
Use of Paints
Spreading Rates
Spraying
Our Service
Special Paints
Ceilings, Walls
Newlite
Mill White
Tinted Newlite
Special
Conditions
Over Water
Paint
Dado Paint
Size-Filler
Dulsheen Tints
Cement Floors
Enamel
Dressing
Hardener
Exterior Concrete
Brick, Stucco
Kent Coating
Enamel, Varnish
Wooden Bldgs.
Utility Paint
House Paint
Fire Retardant
Metal
Preservation
Priming
Finishing
Fumes, Acids
anks (interior)
enstocks, Etc.
Steel in Masonry
Galvanized Iron
Stacks, Boilers
as Holders, Etc.
tain Preventive
Bituseal
Creosote Sealer
ampsealer
1 Imp. Red
xide
ridge Paint
luminum Paint
one Paints
oor Coating
ecotite
oiler Settings
achinery Paint
ipe Paints

MIXING VARNISHES, made with high grade gums by heat treatments with various oils used in suitable proportions with linseed oil and china wood oil, add water-proofing qualities, resistance to various fumes, and in other ways improve paints for the preservation of steel and iron. There are a great number of kinds and grades of gums used in various varnishes and each has its desirable features and defects.

TURPENTINE and other volatile thinners have no binding qualities. When pure they entirely evaporate after paint is applied, and only serve to facilitate spreading of the paint, to flatten the gloss, promote adhesion by softening an underlying material, to assist in penetration on slightly porous surfaces, and aid in securing a uniform coating of proper thickness. When used in excessive amounts, their evaporation leaves the paint film porous.

MINERAL SPIRITS. Mineral spirits, which are especially refined for paint manufacture, perform the same function as turpentine, and with as good results in most paints, but are not so desirable for some varnishes. Paint makers' mineral spirits are now sanctioned by most Government and Railroad paint specifications.

DRIERS. Linseed and other oils used in paints dry by absorbing oxygen from the air which causes the oil to oxidize and solidify. Only to a very minor degree is the drying of oil paints due to evaporation. Unless accelerated by some other agent, the oxidization of oil paints progresses very slowly so that a paint made with pure raw linseed oil and no drier would ordinarily require a number of days or even weeks for drying free from tackiness. To offset the manifest disadvantages of such a condition "driers" are added to hasten the absorption of oxygen and quicken the hardening, or "drying", of the paint. Theoretically, all driers are harmful to paint since a film of oil dried by their aid is not so elastic or durable as oil dried naturally without the use of driers. Practically, however, driers are absolutely essential. Without their use oil paints would be in danger of harm for several days by the weather, abrasion, collection of dirt, dust, insects, etc. For greatest durability, the least practical amount of drier should be employed.

Driers consist of various metallic compounds combined with oil or a gum and dissolved in turpentine or other solvent. Several metal compounds are useful as driers and each has its good and weak points. They take up oxygen from the air and impart it to the oil. The proper selection and proportion of drier is of utmost importance for best results, and the kind and quantity varies with different kinds of paints.

ASPHALTUM is a form of bitumen. It occurs in the earth in various parts of the world including the West Indies and our own Middle West. Cheap grades may be derived from coal tar. It has been used for a great many years alone or as an ingredient in paint making. It, like tar, is not a durable coating for weather exposure, being broken down by the action of actinic light and other elements of weather. Its elasticity and durability out of doors is increased somewhat by heat treatment with linseed and other oils, but its use on exterior work is not usually justified even by its cost. Our No. 772 Exterior Bituminous Black gives excellent results on certain special kinds of work. Asphaltum is resistant to moisture and most chemicals. Many asphalts and tars contain acids and other impurities detrimental to steel.

Pigments Used in Paints

The principal pigments used in technical paints, are:

Iron Oxide
Carbon
Graphite
Red Lead
White Lead (Lead Carbonate)
Sublimed White Lead
Sublimed Blue Lead
White Zinc (Zinc Oxide)
Lithopone
Titanium Dioxide
Aluminum
Antimony Oxide
Inert Mineral Fillers
Tinting Pigments

IRON OXIDE, red and brown, has long been one of the most valuable pigments used by the paint maker. It is especially valuable as a preservative of iron and steel. It is itself a form of iron which has undergone all of the chemical change by corrosion that it is possible to undergo because it has lain for centuries in the earth.

Before it is suitable for use as a paint pigment, however, the ore must undergo thorough refining treatment. It must be roasted in ovens under high heat to drive off all moisture of crystalization, for the ore as mined contains a large amount of combined water. The purity of the oxide varies with the vein from which mined; so does the shade. There is a wide variation in the qualities of iron oxide pigments, and the purchaser of paint should therefore make careful discrimination.

High grade iron oxide paint like our No. 31, see page 35, is one of the best protectors of iron and steel; it makes a good priming coat and a first-class finish coat. It withstands many chemical fumes as well as ordinary weather conditions. It is also excellent for wood or brick.

CARBON BLACK makes one of the most durable paints. Paints made with carbon and with iron oxide have been known to last, with practically no change of color, for centuries. Examples of this are found in some of the allegorical

Pigments
Use of Paints
Spreading Rates
Spraying
Our Service
Special Paints
Ceilings, Walls
Newlite
Mill White
Tinted Newlite
Special
Conditions
Over Water
Paint
Dado Paint
Size-Filler
Dulsheen Tints
Cement Floors
Enamel
Dressing
Hardener
Exterior Concrete
Brick, Stucco
Kent Coating
Enamel, Varnish
Wooden Bldgs.
Utility Paint
House Paint
Fire Retardant
Metal
Preservation
Priming
Finishing
umes, Acids
anks (interior)
enstocks, Etc.
Steel in Masonry
Galvanized Iron
Stacks, Boilers
as Holders, Etc.
tain Preventive
ituseal
reosote Sealer
ampsealer
1 Imp. Red
xide
Carbon Black
ridge Paint
luminum Paint
one Paints
oof Coating
ecotite
oiler Settings
achinery Paint
ipe Paints

wall paintings in Notre Dame Cathedral in Paris, and many people have noticed old wooden sign boards on crossroads in this country, names on which were painted years ago with black carbon paint, from which the bare wood has been worn away by the weather, leaving the black letters in bold relief.

Carbon as used in the paint industry, is in two forms (aside from graphite), lamp black and carbon black. The former is made by incomplete combustion of petroleum and the latter by a similar process from natural gas. Carbon black is most extensively used. Lamp Black is principally used for shading.

On account of its inert nature, fineness and ability to absorb the binding oils of the vehicle, it makes a very elastic tough paint. On steel or iron, it has no superior for cover coats. It, like graphite, is not suitable for priming coats, as it has no inhibitive qualities against rust.

High grade carbon paint, like our No. 16 Carbon Black, has high spreading capacity and is noted for its easy-working qualities. See page 36; also 33, and 37 (CE-CO Bridge Paint).

RED LEAD is principally lead peroxide, with amounts of lead monoxide (litharge) ranging from 2%, to 15%. Litharge acts as a strong drier of oil, and its presence in large amounts is not desirable for paint manufacture. Red Lead has long been used as a paint pigment. Its chief use is in paint for priming iron and steel. Its chemical nature tends to prevent the formation of rust on steel. It is not recommended for a finish coat except when mixed with some other pigment such as carbon or graphite. Its bright orange color soon fades badly on exposure. It is susceptible to sulphurous gases. For steel exposed to extreme moisture, it is an effective protector.

An unsatisfactory job of painting is more apt to occur with red lead paint than with any other paint, due to its great weight which causes it to settle quickly when mixed with oil. To overcome this, the mixture must be frequently and thoroughly stirred up, or some means of holding the red lead up in suspension used. We accomplish this by mixing with it in the oil a small amount of lighter, fibrous pigment, such as asbestine, which is chemically inert. The result is that in our Suspended Red Lead we furnish high grade red lead paint in ready mixed form which, under usual painting conditions, insures a far better paint film than is obtained from red lead mixed by hand. Full benefit from the red lead is obtained because it is evenly distributed over the surface of the steel.

BASIC CARBONATE WHITE LEAD (Corroded White Lead) is probably the best known (among laymen) of all the paint pigments. Ground to paste form with linseed oil, it is the "lead in oil" commonly used by painters in this country. Its use is forbidden in some countries on account of its poisonous nature when taken internally. It is nearly white, has good hiding power, absorbs oil well, and makes a paint of smooth working qualities.

Paint made with only pure lead carbonate, after a few months' exposure to weather, "chalks off". The surface of the film gets powdery and gradually washes down with rain or rubs off with friction. To control this it is necessary to use a certain amount of white zinc and other pigments of inert nature. Too large a proportion of zinc will make the paint brittle, so it will crack.

Lead carbonate is susceptible to sulphurous gases, which turn it dark. It is therefore not recommended where these fumes are present, as in industrial communities. Sublimed lead, titanium dioxide, zinc, or lithopone paints give much better results.

SUBLIMED WHITE LEAD is a basic sulphate of lead, containing a very small amount of anhydrous oxide of lead and zinc oxide. The process of manufacturing is similar to that used in the manufacture of zinc oxide. The lead ore is heated in furnaces to 2000 degrees F. which reduces it to a fume. This fume is blown with sulphur gases through a series of chambers. The sulphur converts the metallic lead, resulting in sublimed lead which is deposited as fine powder. This is collected, washed and given other treatment.

Being a pyrogenic-formed substance, sublimed lead is not affected by heat or deleterious gases of the atmosphere or factories, and particularly is not affected by sulphurous or carbonic gases which are injurious to lead carbonate and red lead. It will therefore be realized that Sublimed White Lead is a valuable pigment for the manufacture of paints for industrial communities, as is Sublimed Blue Lead which is described below.

SUBLIMED BLUE LEAD is of composition similar to sublimed white lead, amorphous sulphate and anhydrous oxide of lead, with a small amount of oxide of zinc. In addition, it contains sulphide of lead and traces of carbonaceous matter. It is made by the same process as sublimed white lead, which process is described above, except that in place of coke which is the fuel used for the manufacture of sublimed white lead, Sublimed Blue Lead is smelted with bituminous coal. Part of the lead fume is converted into sulphide of lead and the carbonaceous matter is absorbed from the fuel. The color of Sublimed Blue Lead is not permanent under weather exposure, the pigment fading quickly to a light, silvery gray.

Use of Paints
Spreading Rates
Spraying
Our Service
Special Paints
Ceilings, Walls
Newlite
Mill White
Tinted Newlite
Special
Conditions
Over Water
Paint
Dado Paint
Size-Filler
Dulsheen Tints
Cement Floors
Enamel
Dressing
Hardener
Exterior Concrete
Brick, Stucco
Kent Coating
Enamel, Varnish
Wooden Bldgs.
Utility Paint
House Paint
Fire Retardant
Metal
Preservation
Priming
Finishing
umes, Acids
anks (interior)
enstocks, Etc.
teel in Masonry
alvanized Iron
Stacks, Boilers
as Holders, Etc.
tain Preventive
ituseal
reosote Sealer
ampsealer
1 Imp. Red
xide
Carbon Black
ridge Paint
luminum Paint
one Paints
oof Coating
ecotite
oiler Settings
achinery Paint
ipe Paints

Sublimed Blue Lead Paint has proven, both in actual service and in tests such as those conducted at Atlantic City by the American Society for Testing Materials, to be a paint of great merit, especially for the preservation of steel and iron. It is particularly desirable for priming steel which has once become rust pitted; also where sulphurous gases are encountered. It makes a very durable protective paint for either priming or finishing coats, but fades in color if used as a finish coat out of doors.

Sublimed Blue Lead is in a very fine state of division, about five times as fine as red lead, is of lighter gravity and stays in suspension well in oil.

We manufacture sublimed lead paints in several shades including No. 250 Sublimed Blue Lead, No. 251 Light Gray, No. 252 Dark and No. 253 Olive Green. We also combine it with other pigments for special purposes, including No. 255 Red and Blue Lead which makes a particularly strong primer for steel exposed to heavy moisture and sulphurous or other rust promoting gases.

GRAPHITE, which is a form of carbon, is used principally in paints for steel and iron. Its natural color is a very dark gray-black. It is mined from the earth and is usually combined with silicates, the purity of the graphite varying in different mines. It is also produced artificially. Graphite with amorphous structure is superior to flake graphite for paint purposes.

When very finely divided and mixed with other pigments, graphite makes an excellent paint for cover coats on steel or iron. It is not recommended as a priming coat as it is not an inhibitor of corrosion.

LITHOPONE is a coprecipitated mixture of zinc sulphide and barium sulphate. The best grades are pure white in color and have great opacity, consequently great covering power. The qualities of lithopone for paint purposes varies greatly and careful selection is necessary for best results, this being caused partly by difficulties of control experienced in its production to insure uniform grades. It is now thoroughly established as a pigment for interior paints, and has possibilities for exterior use also if correctly balanced with other pigments and proper vehicles.

Unlike white lead, lithopone does not discolor in dark interiors. It is therefore a basic pigment for high-grade interior white paints and enamels. It is quite inert chemically.

WHITE ZINC (Zinc Oxide) is a very white pigment. It retains its color under practically all conditions of exposure, whether indoors or outside. It is not affected by sulphurous or other chemical fumes commonly found in industrial plants. It improves the gloss as well as the working qualities of paint in which it is used. The highest grade enamels are made with white zinc.

Added to white lead in outside paints, it makes the paint harder and controls chalking or powdering off of the lead. It must be used discriminately, however, because too much zinc makes the paint too hard, which results in cracking. It is valuable in paints for marine work or seashore climate.

TITANOX. Developed a few years ago, this is a valuable addition to the pigments suitable for paint manufacture. It is made by electric furnace process from titanium bearing sands which exist in the United States. Its composition is titanium dioxide precipitated on and coalesced with blanc fixe (precipitated barium sulphate).

Titanox has greater covering, or hiding, power than any other pigment and is very inert chemically. It is highly resistant to both acids and alkalies and to sulphurous gases. If used alone in paint, it chalks badly, but this tendency is overcome by the addition in correct amounts of zinc and other pigments. It is suitable for interior or exterior use. When properly used, it produces a firm paint film of exceptional smoothness. It is very durable. Our paints made with this pigment do not soil up as readily as a lead paint, nor turn dark in the presence of sulphuretted gases. Shades are more permanent than when made on a lead base.

INERT PIGMENTS. By this term is meant silicious and other mineral pigments which are not subject to chemical change when used in paints and have no effect on the other ingredients used in the paints. Asbestine (magnesium silicate), China Clay (silicate of alumina), Barytes (Barium Sulphate) and Silica are the leading inert pigments. Asbestine is of a fibrous nature and light in weight. Its use improves the suspension of heavy pigments, which helps to produce a uniform coating of paint on application. It also helps form a stronger fibre of the paint film. Silica, Barytes and Asbestine, bulk the paint, producing a thicker coating. This is important, especially in light weight paints like graphite and carbon. It also imparts "tooth" to the paint. These inert pigments have poor opacity, hence are not suitable for use as the sole pigment of a paint which is expected to obscure a surface. They are practically always used in combination with some other pigment or pigments of good hiding power.

ALUMINUM. Powdered aluminum metal has been used as a pigment in painting for many years. Formerly its use was confined almost exclusively to bronzing of radia-

Use of Paints
Spreading Rates
Spraying
Our Service
Special Paints
Ceilings, Walls
Newlite
Mill White
Tinted Newlite
Special
Conditions
Over Water
Paint
Dado Paint
Size-Filler
Dulsheen Tints
Cement Floors
Enamel
Dressing
Hardener
Exterior Concrete
Brick, Stucco
Kent Coating
Enamel, Varnish
Wooden Bldgs.
Utility Paint
House Paint
Fire Retardant
letal
Preservation
Priming
Finishing
umes, Acids
anks (interior)
enstocks, Etc.
teel in Masonry
Galvanized Iron
Stacks, Boilers
as Holders, Etc.
tain Preventive
ituseal
reosote Sealer
ampsealer
1 Imp. Red
xide
Carbon Black
ridge Paint
luminum Paint
one Paints
oof Coating
ecotite
oiler Settings
achinery Paint
ipe Paints

tors, pipes, and sundry small articles. It has of recent years found some favor as a coating for oil and other storage tanks, and has been tried, with more or less satisfactory results, for protection of other metal structures and also for wood and other surfaces. It reflects back heat rays from the sun which keeps contents of tanks coated with it from excessive heat absorption. It is a poor radiator of heat and tends to prevent dissipation of heat from within a container coated with it. So long as it retains its silvery luster it reflects light fairly well, but its reflectivity is much inferior to white pigments. In poorly lighted places it appears a dull gray. It is very opaque with resultant good hiding power. As one of the agencies in the destruction of paint films is actinic light, its opacity is a valuable feature. In dry powder form it is a mean material to handle.

We combine it with special vehicle binders designed for various conditions of use and surface, and superior durability is thus obtained. See page 37.

ANTIMONY OXIDE is one of several recent additions to the pigments. Their, so far, limited use has not clearly demonstrated their exact value. Antimony Oxide shows characteristics including good obscuring power, which give promise of adaptability for special uses.

CHROMATES. Basic Lead Chromate (American Vermilion) and Zinc Chromate have properties which tend to prevent the formation of rust on steel when they are incorporated in a primer. Their action is to neutralize dilute acids, such as is formed by sulphurous gases and moisture, which otherwise would promote corrosion. They are quite expensive and impractical for use as the sole pigment of a primer, but are of value to enhance the effectiveness of other pigments for this purpose. See "Primox", page 26.

TINTING PIGMENTS. These are used for the purpose of effecting a change in color or shade of a base pigment. Included in this class are the umbers, siennas, chrome greens and yellows, Prussian and Ultramarine blues, toluodine red, lamp black, etc. Some of these are at times used partly as base pigments, and affect the durability of the coatings, but their main purpose is usually color.

"Save the surface and you save all"- Paint & Varnish

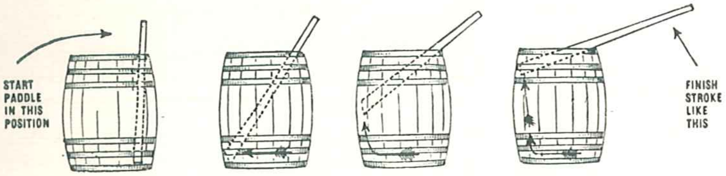
The Use of Paints

Brushes

Good brushes pay large dividends. More rapid work and a better job will be obtained by their use. The purchase of a cheap brush instead of a good one may cost you ten or even a hundred times its price in lost time and inferior results. A brush of ample size for the work in hand, with full long bristles, should be selected. Badly worn and dirty brushes should be discarded as money wasters. A little attention to this small detail of brushes will be well rewarded.

Stirring of Paint

Every paint manufacturer receives more complaints attributable to lack of thorough stirring up of the paint than to all other causes. Usually this is due to the use of a stirring paddle of too narrow width, or failure to agitate the paint in such a way that the heavy pigment is raised from the bottom, or near the bottom, of the package to the top. The following illustration indicates the efficient way of doing it.



By seeing that a broad, flat paddle is used, stirring with an up and down action, time will be saved, paint of correct consistency will almost invariably be drawn from the package, and results improved. Shun a narrow stirring paddle and an around and around stirring action as you would any other wrong way of working.

The paint should be stirred each time any is to be withdrawn.

Stir Vigorously. Paint is heavy and it requires strength to set up a flowing current which will bring the heavy solids to the top.

Preparation of Surfaces

The preparation of surfaces before application of paint is of utmost importance. Unless it is well done, best results from the painting will not be obtained. Yet it is more frequently slighted than any other part of the work. This is particularly true of metal surfaces.

Time and expense for thoroughly scraping off loose old paint, rust and scale are well invested. Do not allow a false idea of economy or carelessness of workmen to stint this work. Wherever a rust spot appears go after it with scraper and wire brush. Remove all paint for at least an inch around it and expose the bright metal. Then prime before new rust can start.

Look out for condensation or dew, particularly in early morning hours. The surface must be dry and free from any dirt, grease, or other foreign matter.

Old paint firmly attached need not be removed usually. If it is not firmly attached, the contraction of the new paint on drying may pull it loose. Therefore, test the old paint carefully before painting over it.

Old paint may be quite porous due to weathering. If so, it will rob the new paint applied over it of some of its liquid binders and weaken it, possibly causing it to dry flat or develop dead or light colored spots. An extra coat, even though not necessary for covering will usually be advisable for such a condition.

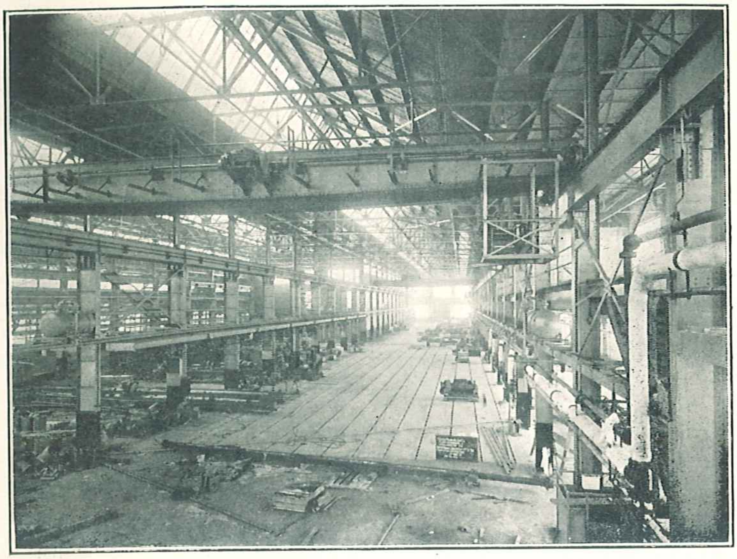
Spreading Rates of Paints

Spreading Rates given in this book are approximate areas which may reasonably be expected from good brush application on average work, and best results will be obtained if the paints are applied so as to approximately cover these areas. Much depends upon the workman, as well as the kind and condition of the surface. Even careful and skilled workmen will spread the same paint at different rates of coverage. Poor workmanship, whether due to lack of skill, carelessness, or desire for speedy application, will affect the result.

Old coats of paint may be quite porous, absorb the vehicle rapidly and reduce coverage. Also rough surfaces, edges, corners, rivet heads, cracks, etc., cut down coverage considerably.

Spray or air brush application usually takes a little more paint for the same amount of surface, but skillful operators often obtain greater coverage. Higher coverage should be obtained on rough surfaces. On exterior work, loss of paint due to draft or wind may cut down the figure greatly.

Too thick or too thin a film is detrimental to results. By applying the paints at about the rates indicated, the best results will be had.



Chicago Pneumatic Tool Co., Franklin, Pa. Steel painted when erected with our protective paints.

Spraying Method of Painting

The spraying method of applying paints has been, during the past few years, so developed and spraying apparatus so improved, that it is now possible to obtain very satisfactory results on some classes of work. It has also proven to be economical of labor on many classes of work, and in some instances the saving is great. Usually a little more paint is consumed in applying a coat, but very often it is possible to accomplish satisfactory results with one less coat than would be required with brush application.

Although we are not yet satisfied that certain types of paint notably steel preservative paints, produce as durable results applied by spraying as by the old brush method, interior paints such as Newlite Mill White can be applied with a spraying machine with fully as good results as by brushing.

The success of spray painting depends very largely on the skill of the operator. Intelligent men with some mechanical ability should be chosen for this work. Such men frequently obtain successful results where men lacking these qualifications, although they may be experienced brush painters, fail. Good and efficient spraying apparatus has sometimes been condemned through lack of intelligent use.

Spreading Rates
Spraying
Our Service
Special Paints
Ceilings, Walls
Newlite
Mill White
Tinted Newlite
Special
Conditions
Over Water
Paint
Dado Paint
Size-Filler
Dulsheen Tints
Cement Floors
Enamel
Dressing
Hardener
Exterior Concrete
Brick, Stucco
Kent Coating
Enamel, Varnish
Wooden Bldgs.
Utility Paint
House Paint
Fire Retardant
Metal
Preservation
Priming
Finishing
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Galvanized Iron
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Prejudice of brush painters and short-sighted opposition of labor unions has prevented adoption of spraying apparatus by many painting contractors, but contractors experienced in this method of painting are now available.

Spraying apparatus can be obtained suitable for almost any kind of work. Interchangeable spray guns adapted to specific purposes are furnished. The width of the stream of spray can be adjusted to suit the work. Air compressors of various capacity, operated by gasoline engine or electric motor, may be purchased, or compressed air from the regular supply, which is a feature of most large industrial plants, can be utilized.

Air pressures ranging from 10 to 100 lbs. at the nozzle are used, depending on type of machine, nature of work, viscosity of paint and speed of operation.

Whether the spraying method is more wasteful of paint than brush application depends largely on the nature of the work and the skill of the operator. On the average, the spray method is more wasteful than brushing, but instances have been reported where spray application took less paint than similar work done with brushes. On some work it has proven economical to use spray application in spite of the fact that it consumed more paint and the work had to be done more frequently. The large saving in labor more than offset these items.

Any of our paints can be applied by means of suitable spraying equipment.

On request, we will gladly furnish the names of some of the manufacturers of spraying apparatus which have been found to produce good results, or spray painting contractors where available.

South Side Hospital, Bay Shore, Long Island.
Interior Walls and Ceilings Finished with Ceco Washable Paints.
York & Sawyer, Architects.

Our Service

It is our aim to help our customers to obtain the best results with economy. You are invited to consult us freely on paint matters.

Our experience of over fifty years in the manufacture of paints, places expert information at the disposal of our customers. We manufacture paints from all of the approved pigments and vehicles. Long observation of results produced by each, and their combinations, supplemented by up-to-date technical information and research, enables us to give valuable advice on paint matters. It is important that the right kind and grade of paint be used for economy and the service desired.

Special Paints

When necessary, we furnish special paints to meet unusual or special conditions.

An inspection and diagnosis of local conditions by our representatives, and recommendations for best results, with specially designed paints where necessary, have been helpful to many important concerns. This free technical aid is part of our service.

We should be furnished complete detailed information concerning the nature of the work to be done; shade and kind of finish desired, and methods of application.

Good Paint - An Investment

MORE and more the public realizes that money spent for good paint and painting is an investment and not a profitless expense. There are few items of expenditure for maintenance that save and earn as many dollars per dollar of cost as does good paint.

Good and Bad Investments

Good paint is a good investment; poor paint is a poor investment; it is often even worse: a loss and dragging expense, for it results in heavier outlay for labor, inferior protection to structures and more frequent purchases of paint. It costs as much or more to apply poor paint as good paint and it usually requires more paint to do the work, and repainting has to be done oftener. The labor cost for painting is usually at least three to six times the cost of the paint.

Painting is a good form of insurance and good advertising.

Our Service
Special Paints
Ceilings, Walls
Newlite
Mill White
Tinted Newlite
Special
Conditions
Over Water
Paint
Dado Paint
Size-Filler
Dulsheen Tints
Cement Floors
Enamel
Dressing
Hardener
Exterior Concrete
Brick, Stucco
Kent Coating
Enamel, Varnish
Wooden Bldgs.
Utility Paint
House Paint
Fire Retardant
Metal
Preservation
Priming
Finishing
Fumes, Acids
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enstocks, Etc.
Steel in Masonry
alvanized Iron
Stacks, Boilers
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achinery Paint
ipe Paints

Ceilings, Interior Walls

PURE WHITE
NEWLITE
WASHABLE PAINT

Flat, Eggshell, Gloss
Poroprimer (undercoat)
Fume Resisting
Heat Resisting
Damp Resisting.

For Interior Use

What You May Expect From Newlite

NEWLITE will give you, at a comparatively low cost, a pure white washable finish which will remain white and retain its light reflecting qualities for several years under ordinary conditions (for special conditions see page 18). This finish will be smooth, practically free from brush marks, hard without brittleness, sanitary because it does not retain dirt or soil marks tenaciously, look well for a long time because it keeps clean or can be cleaned successfully, and very durable.

Choice may be had of a smooth flat finish with an attractive sheen, an eggshell or semi-gloss effect, or a high gloss finish rivaling that of enamel or tile.

DENSE COVERING—Newlite covers exceptionally well so that one coat is frequently sufficient for repainting. Two coats should usually be used over colored surfaces or for repainting over old coats of paint that are badly soiled or stained.

CLEANLINESS—The smooth firm coating formed by Newlite and its snowy whiteness assure the cleanliness that is demanded by present day ideas of efficiency and sanitation. The old idea of using dark colors in work rooms which would not show dirt and soil is largely abandoned. The efficient and clean way is to "show up" the dirt and get rid of it. Newlite not only reveals the dirt where present, but its firm smooth surface prevents dirt from readily getting a lodging place. Soil marks are not retained tenaciously by the paint and are easily cleaned off with water and soap, restoring the original brightness.

PERMANENCE—Newlite retains its whiteness to a remarkable degree and is not equalled in this respect by any other interior white paint. This has been repeatedly proven in numerous side-by-side tests. Yellowing does not take place. Tinted Newlite holds its original color tone without darkening.

LIGHT REFLECTION—Being the whitest paint yet produced, Newlite gives the maximum reflection of light with a consequent increase of illumination. In work rooms brightened with Newlite more daylight working hours are obtained. Newlite reflects from 70% to 75% of the light that strikes it, increasing the illumination from 20% to 45%. Walls and ceilings painted with it throw light on machines and the entire working area, banishing shadows which are the frequent cause of accidents, mistakes and spoilage.

SUITABLE FOR ANY KIND OF SURFACE—Any interior surface, including wood, concrete, brick, plaster and metal, may be painted to advantage with Newlite. It can be successfully applied over cold water or other paints if used in accordance with our directions. Metal should have a priming coat of a suitable metal preservative paint, (see Specifications for Use). For use over asphalt, tar, oil stains, etc., see Bituseal, page 33.

FLAT FINISH—The finish imparted by Newlite Flat Finish differs from other so-called flat wall paints in that it is not rough and marred with brush streaks (which collect dust and dirt and prevent successful cleaning). It is very smooth, the paint is practically free from brush marks due to its levelling-out characteristics, and shows a delightful sheen when viewed toward a source of light. Due to its smoothness and hardness, Newlite Flat does not collect and retain dirt to the extent that other flat finish paints do. Many concerns who formerly preferred gloss finish whites now use Newlite Flat Finish and find it keeps clean fully as well as the gloss finishes. A flat finish minimizes the imperfections in a surface. It diffuses reflected light and shows no glare.

GLOSS AND EGGSHELL FINISHES—Newlite High Gloss has the smooth lustrous finish of enamel or tile, with covering qualities which are much superior to the best enamels, and non-yellowing. An enamel gloss effect can be obtained at a considerable saving in cost of material and the number of coats required. Newlite Eggshell has a low semi-gloss and is a superb finish for many purposes.

TINTED NEWLITE—For decorative work, Newlite may be tinted with ordinary oil colors, or it can be obtained from us in shades if desired. Tinted Newlite is especially desirable for schools, offices, hospitals, homes, etc.

DOES NOT CAKE—Unlike many mill white paints,

Ceilings, Walls
Newlite
Mill White
Tinted Newlite

Special
Conditions
Over Water
Paint

Dado Paint
Size-Filler
Dulsheen Tints
Cement Floors
Enamel
Dressing
Hardener
Exterior Concrete
Brick, Stucco
Kent Coating

Enamel, Varnish
Wooden Bldgs.
Utility Paint
House Paint
Fire Retardant

Metal
Preservation
Priming
Finishing
Fumes, Acids

anks (interior)
enstocks, Etc.
Steel in Masonry

Galvanized Iron
Stacks, Boilers

as Holders, Etc.
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Creosote Sealer

ampsealer
1 Imp. Red
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achinery Paint
ipe Paints

Newlite does not cake or harden in the package on standing. Its pigment remains soft and can be easily stirred up. This is true of the Flat as well as the High Gloss and Eggshell. This feature eliminates waste of material and labor of hard mixing.

SPRAYED OR BRUSHED—Newlite may be applied by means of a spraying machine as well as with brushes. It has very smooth, easy working qualities, and when being applied, the odor is not objectionable.

A WELL-TRIED PRODUCT—Newlite has been on the market for many years and is a proven product. It can be relied upon for good service and economical results. Designed for service in industrial plants, it is a paint of the "mill white" type which has earned, through sheer merit, a place of high esteem in many large concerns. The repeat orders which it almost invariably brings forth where once well tried, is the best evidence of its superior quality and the all-around satisfaction which it gives. Newlite is used in public buildings, including hospitals, schools, stores and offices, and homes, as well as industrial plants. It is a decorative finish of excellence and very serviceable.

Special Conditions

Newlite is giving satisfactory service in pulp and paper mills, bleachery and dye houses, gas plants, rubber factories, caustic and acid manufacturing plants, laboratories, etc., where conditions are hard on paints. Special formulas are used where necessary to meet exceptional conditions.

Gases and Fumes. Regular Newlite is not ordinarily susceptible to sulphuretted gases and resists dilute fumes from acids. If fumes are severe, Newlite Fume Resisting White, which is a special formula, should be used. Fume Resisting Eggshell and Fume Resisting Enamel are particularly recommended if moisture is also present.

Moisture. Newlite, being washable, is not ordinarily affected by moisture settling on the paint. Newlite Gloss and Newlite Eggshell withstand considerable moisture in excellent shape. Where moisture is moderate, regular Newlite Flat gives good results as a finish on suitably primed surfaces, but if flat finish is desirable where moisture is extreme our special Newlite Damp Resisting Flat should be used. In dairy, canning, laundry, ice cream and other industrial plants, it gives excellent results as a finish for walls and ceilings. For sealing masonry walls and ceilings, gypsum, and other porous surfaces against heavy moisture a coat of our Damp Sealer, followed by Bituseal and Newlite, results in a white (or tinted if desired) finish which resists and excludes moisture very efficiently. See pages 34, 33.

Heat. Interior of bakeries and other rooms where warm to hot temperatures are encountered should be finished with Newlite Heat Resisting White, preferably in Eggshell or Gloss finish. Also resists oven gases well.

Tar, Asphalt, Oil, Creosote Stains. A white or tinted finish can be obtained on interior surfaces coated, treated or stained with these substances (which cause vexatious staining of other light paints) with Newlite in combination with Bituseal or CE-CO Creosote Sealer. See page 33.

Over Cold Water Paint

Good results can be obtained with Newlite over old coats of cold water paint or white wash. The surface should be thoroughly wire brushed to remove all loose and excessively powdery water paint. Apply a liberal coat of Newlite Special C. W. P. Primer for water paint. Allow ample time for this priming coat to harden (several days) and finish with Newlite Flat, Eggshell or Gloss as desired.

Spreading Rate

Spreading rate of Newlite Paint varies with the surface and method of application. On brick, concrete and rough boards **Newlite Poroprimer** should be spread about 250-300 square feet per gallon, used as the first coat; about 400 square feet per gallon on smooth boards, and up to 600 square feet on hard smooth finish plaster. **Newlite Flat, Eggshell**, and **High Gloss** used as second coat over a priming coat, should be spread 400 to 600 square feet, per gallon, depending on kind of surface, method and care of application.

Specifications for Use

Newlite is easily applied by brush or suitable spraying apparatus.

New Work (previously unpainted surfaces of brick, concrete, plaster, wood).

First coat—Newlite Poroprimer.

Second coat—Newlite Flat, Eggshell or Gloss Finish.

If properly applied, this will suffice for a solid white coating on all but very rough surfaces. If surface is very porous, or rough, and better surfacing is desired, a third coat should be applied. Where gloss finish is used on three coat work, it will be found economical to use Poroprimer as second as well as first coat. Also see CE-CO Size Filler, page 20.

Steel or iron to be primed with our No. 251 Light Sublimed Blue Lead or Ce-Co Galvanized Iron Primer, and then finished like other surfaces.

Special
Conditions
Over Water
Paint

Dado Paint
Size-Filler
Dulsheen Tints
Cement Floors
Enamel

Dressing
Hardener
Exterior Concrete
Brick, Stucco
Kent Coating

Enamel, Varnish
Wooden Bldgs.
Utility Paint
House Paint
Fire Retardant

Metal
Preservation
Priming
Finishing
Fumes, Acids

anks (interior)
enstocks, Etc.
Steel in Masonry

Galvanized Iron
Stacks, Boilers

as Holders, Etc.
Stain Preventive
Bituseal
Creosote Sealer

ampsealer
1 Imp. Red
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ridge Paint
luminum Paint
one Paints

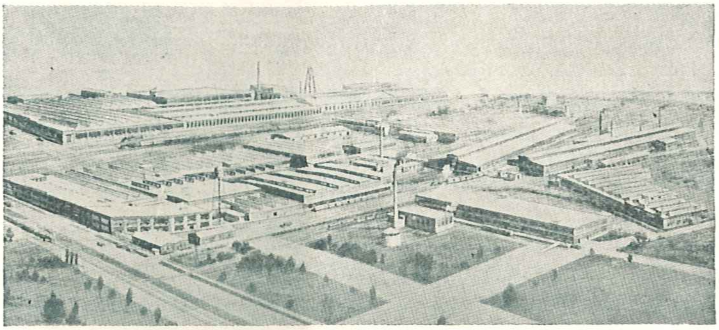
oof Coating
ecotite
oiler Settings
achinery Paint
ipe Paints

Old Work (surfaces previously coated with oil paint).

Be sure old paint is firmly attached and in good condition. Remove any scaling or loose paint. Touch up bare places with Newlite Poroprimer if necessary.

A single coat of Newlite in finish selected may be sufficient. If gloss or eggshell finish is desired, and an undercoat is necessary, use Newlite Poroprimer followed by Newlite Gloss or Newlite Eggshell. If an undercoat is necessary for flat white finish, Newlite Flat White may be used for both coats, but if the old paint is a flat or porous paint, it is best to use Poroprimer as first coat, finishing with Newlite Flat Finish.

Bare metal to be primed as recommended for New Work.



Rome Wire Co. (composite view). Our Interior white and other Ceco paints used by this company.

Dado Paints

All Shades—Gloss or Flat

GREENS, browns, grays, and other restful shades painted on the lower part of walls, columns and partitions add to the appearance of rooms by making a pleasing contrast with Newlite White, or colors, on upper walls and ceiling, prevent eyestrain, and do not show soil marks readily.

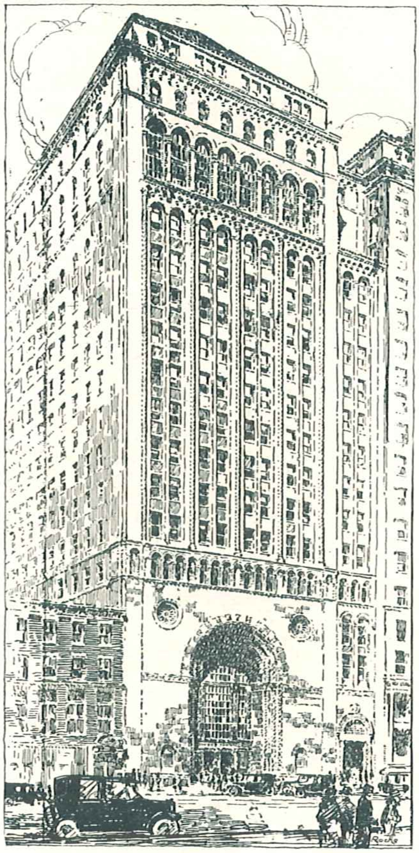
Our Dado Enamel produces a high gloss finish which does not soil up readily and withstands washing.

Spreading rate 300 to 600 sq. ft. per gallon, one coat.

CE-CO Size-Filler

This is a priming coat paint for first-coating walls and ceilings of brick, concrete, plaster, etc. Its sole purpose is to seal the pores, stop the suction, fill the surface and offer resistance to free lime. As regularly furnished, it has very little hiding property, the pigment which it contains being nearly transparent. Two coats of good covering paint, such as Newlite or Dulsheen, applied over it produce a very smooth surfaced job, at less cost than three coats of these paints, and with ample covering power on most work.

CE-CO Size-Filler is not a cheap varnish size, but a high grade combined size and filler for porous and rough surfaces, with great resistance to lime or "saltpeter" and moisture.



Bowery Savings Bank Bldg., 42nd Street, opposite Grand Central Terminal, N. Y. City. Ceco interior wall finishes used when erected. York & Sawyer, Architects.

Dulsheen Interior Paint

Dulsheen interior paint is for use on interior walls, trim, etc. It produces an exceptionally smooth finish free from brush streaks and has a delightful low luster. Washable and very easy to keep clean, it is recommended for any interior surface where a very practical, attractive and economical decoration in tints is desired. Used in connection with CE-CO Size-Filler, it is an excellent, serviceable and economical decoration for plaster walls. Furnished in shades, or in white to be shaded with oil colors.

Cement Floors

CE-CO Cement Floor Enamel
CE-CO Cement Floor Dressing (transparent)
CE-CO Cement Floor Hardener.

CE-CO Cement Floor Paint renders cement floors dust free, with a tough, smooth coating in any color.

Dado Paint
Size-Filler
Dulsheen Tints
Cement Floors
Enamel
Dressing
Hardener
Exterior Concrete
Brick, Stucco
Kent Coating
Enamel, Varnish
Wooden Bldgs.
Utility Paint
House Paint
Fire Retardant
Metal
Preservation
Priming
Finishing
Fumes, Acids
Tanks (interior)
Penstocks, Etc.
Steel in Masonry
Galvanized Iron
Stacks, Boilers
as Holders, Etc.
Stain Preventive
Bituseal
Creosote Sealer
ampsealer
1 Imp. Red
Oxide
Carbon Black
ridge Paint
Aluminum Paint
Zone Paints
oof Coating
Cecotite
Boiler Settings
Machinery Paint
Pipe Paints

CE-CO Cement Floor Enamel is made with special vehicles which penetrate and fill the pores of the cement, forming a binder which helps to prevent the crumbling of the floor under traffic. It eliminates the formation of cement dust.

Two coats applied on bare floors are usually sufficient to produce a first-class finish. If the floor is subjected to heavy traffic, use three coats. Care should be taken to have the floor free from dust, dampness and grease or oil. The latter can be removed usually by washing with benzine or gasoline. A coat of Bituseal may be desirable before finishing such places (see page 33).

Spreading rate about 250 to 300 square feet per gallon, first coat; about 400 square feet, second coat.

CE-CO Cement Floor Dressing (transparent) penetrates the pores, sealing them, and forms a tough binder which prevents dusting and helps to resist wear. Recommended for floors under heavy traffic where a paint with color would wear off too quickly. Not a chemical hardener. A floor treated with it is easy to keep clean. Suitable for any floor that can be successfully painted. Floors should not be damp. New floors should be given time to cure before using this treatment. One or two coats should be used depending on the floor. Spread about 200-250 square feet per gallon, first coat, 300-400 square feet, second coat, with 48 hours for drying between coats.

CE-CO Cement Floor Hardener effects a chemical change within the cement which results in a dense, hard concrete that will resist wear better than ordinary cement. It is easy to apply, simply flush the floor with it with brooms and allow it to soak in and dry out. The floor can be used at once. Two applications will give better results than one, with deeper hardening effect. Should be applied at rate of not more than 100 square feet per gallon for best results.

Exterior Concrete, Stucco and Brick

Kent Concrete & Brick Coating
CE-CO Brick Paints
White and all Shades.

MOISTURE and frost can be excluded from concrete, stucco, brick, and cement plaster, and their appearance improved by the use of these coatings.

Bare concrete and stucco structures become soiled and stained and present an unattractive appearance. Weather and frost constantly attack even these construction materials, and sooner or later damage is done.

New masonry walls should be allowed to dry out thoroughly. To insure against excessive amounts of free lime, which might attack even the resistant binders of these coatings, a neutralizing solution made by dissolving about 3½ to 4 lbs. of zinc sulphate crystals in a gallon of water, may be used, applying liberally and allowing 48 hours to dry out thoroughly. A gallon of zinc sulphate solution should be used to treat about 150 square feet of brick or concrete. If excessive lime is not feared, this treatment may be dispensed with.

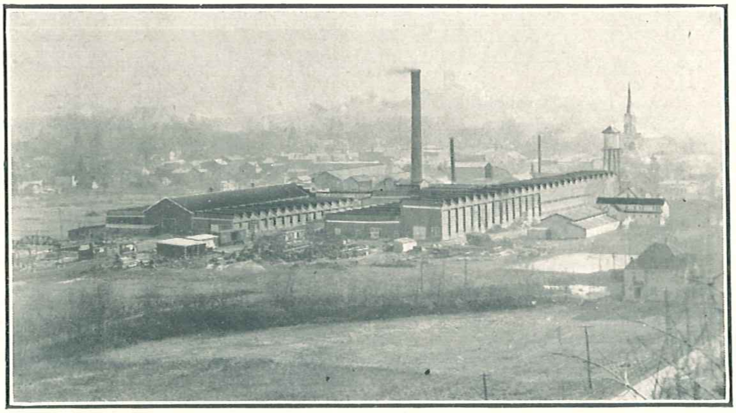
Kent Concrete and Brick Coating excludes moisture and gives durable service. Due to its finish (regularly furnished without gloss), the texture of the masonry is retained. Its binders are specially designed to resist the action of free lime.

A satisfactory job can frequently be obtained from a single coat of Kent Concrete and Brick Coating. For two coat work use Kent Concrete and Brick Primer as the first coat.

Recommended spreading rate of Kent Concrete and Brick Coating on brick and concrete, about 200 square feet per gallon for one coat work; for two coat work about 250 square feet per gallon for the primer and about 300 square feet per gallon for the finish. On stucco, covering rate may be less and depends on the character of the stucco.

CE-CO Brick Paint as regularly furnished produces an oil gloss finish of great durability, and excludes moisture. It is also furnished in flat finish. Two or three coats (on raw surfaces) of CE-CO Brick Paint should be applied.

CE-CO Brick Paint should be applied to cover about 250 square feet first coat and 300 to 450 square feet for second coat.



Shepard Electric Crane & Hoist Co., Montour Falls, N. Y.
Newlite Flat White on interior, No. 31 Imported Red Oxide on exterior.

Dressing
Hardener
Exterior Concrete
Brick, Stucco
Kent Coating

Enamel, Varnish
Wooden Bldgs.
Utility Paint
House Paint
Fire Retardant

Metal
Preservation
Priming
Finishing
Fumes, Acids

Tanks (interior)
Penstocks, Etc.
Steel in Masonry

Galvanized Iron
Stacks, Boilers

as Holders, Etc.
Stain Preventive
Bituseal
Creosote Sealer

ampsealer
1 Imp. Red
Oxide

ridge Paint
Aluminum Paint
Zone Paints

oor Coating
Cecotite
Boiler Settings
Machinery Paint
Pipe Paints

CE-CO Architectural Enamel and CE-CO Varnishes

For finest work CE-CO Architectural Enamel is recommended as a finish of high quality. Regularly furnished white, but can be tinted if desired. Supplied in High Gloss or Eggshell Gloss finish. The best results are obtained when used over CE-CO Enamel Undercoating.

CE-CO Varnishes are designed for various purposes and include CE-CO Exterior Spar, CE-CO Inside Spar, and CE-CO Floor Varnish, each of excellent quality and recommended for first-class work.

Wooden Buildings, Houses

	Spreading Rate in Sq. Ft. Per Gal. One Coat
CE-CO Utility Paint (See below)	400 to 600
No. 31 Imported Red Oxide (See page 35)	400 to 600
Newlite Interior White (See page 16)	
Dulsheen, Interior (See page 21)	
Cecotite Roof Coating (See page 38)	
CE-CO Exterior House Paint (See page 25)	400 to 600
CE-CO Varnishes (See above)	400 to 600
CE-CO Architectural Enamel (See above)	400
CE-CO Porch Floor Enamel	400
CE-CO Inside Floor Enamel	400
CE-CO Fire Retardant Paint (page 25)	400 to 600

CE-CO Utility Paint

All Shades

THIS paint is designed for general exterior use as a protection for wood or metal surfaces. It is made in all colors and shades of gray, green, buff, red and brown, and black, and white. It is designed for long service, good appearance and economical maintenance.

Where ordinary weather conditions are to be combatted, metal or wood buildings, doors, trim, steel or wood sash, finished with CE-CO Utility Paint are well protected and decorated. It is especially recommended for general use of industrial plants on buildings, houses, etc., where more or less sulphur gases are present in the atmosphere. It retains its color and protective qualities in a superior manner due to its scientific design and excellence of the pigments and vehicle binders on which it is based.

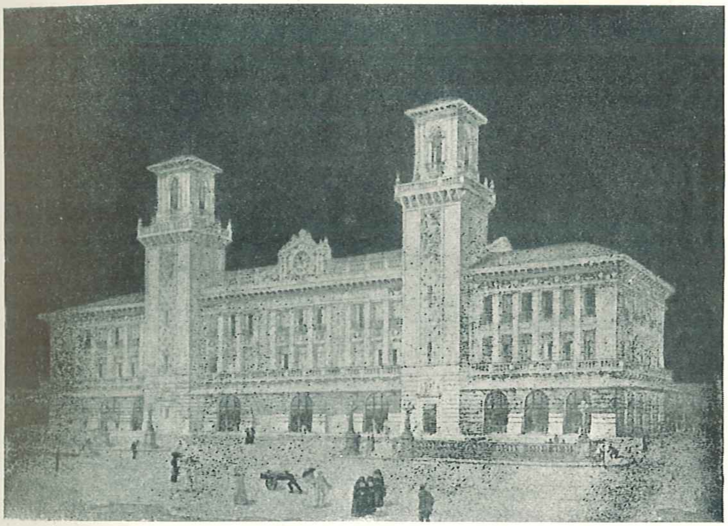
Bare metal should first be primed with one of our metal primers recommended on pages 26 and 27.

CE-CO Utility Paint may be used for priming as well as finishing coats on wood by suitably reducing with linseed oil and turpentine.

CE-CO Exterior House Paint

This is a paint of superfine quality and finish for exterior of residences. We believe it is unmatched for fine work and is certainly not equalled by any of the paints customarily distributed through retail store channels.

CE-CO Exterior House Paint is made on two standard formulas, the Regular and Seashore. The latter is recommended for localities on the seacoast where conditions require a paint of special composition for best results. The regular should be used elsewhere and is supplied unless we are informed the Seashore formula is wanted.



Union Station, Havana
Structure preserved since erection with our technical paints, which are also extensively used in Cuba on bridges, and other railroad structures.

Fire Retardant Paint

Several Shades

THIS paint prevents, except by sustained great heat, the ignition of wood and other inflammable construction materials. It gives good protection against sparks, cinders, and flying embers. It should be applied in two or three coats in the same manner as applying ordinary oil paints. For exterior or interior use.

Enamel, Varnish
Wooden Bldgs.
Utility Paint
House Paint
Fire Retardant

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Stacks, Boilers
as Holders, Etc.

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ituseal
Creosote Sealer

1 Imp. Red
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ridge Paint
luminum Paint
one Paints

ecotite
oiler Settings
achinery Paint
ipe Paints

Metal Preservative Paints

For Structural Steel and Iron; Bridges; Sheet Iron and Steel; Metal Window Sash; Water Towers; Tanks; Roofs; Fences; Etc.

See also pages 5 to 10, 19, 28, 29, 30, 31, 32.

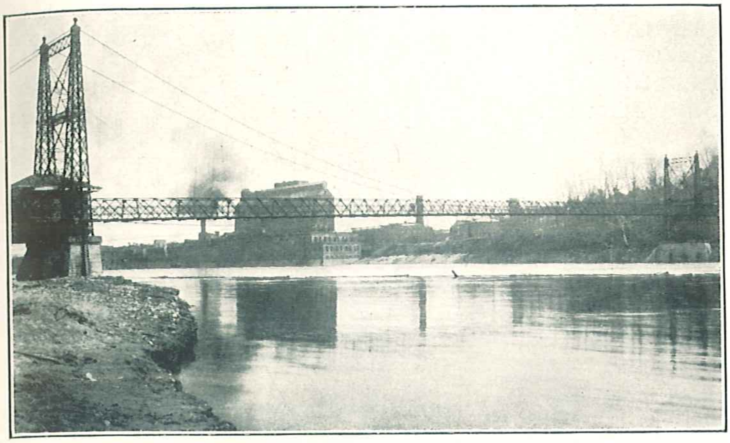
For painting, we divide Structural Steel into two main classes: (1) Exposed, that which, in the completed structure, is exposed without other covering than paint, and (2) Enclosed, that which will be enclosed in brick or concrete. Recommendations are given for both.

Exposed Steel and Iron

		Recommended spreading rate in sq. ft. per gal, 1 coat.
PRIMING	Primox (see below)	500
	No. 31 Imported Red Oxide (see page 35)	500
	No. 250 Sublimed Blue Lead " " 27, 7)	500
	No. 255 Red & Blue Lead " " 27)	450-500
	Suspended Red Lead " " 6)	400
	CE-CO Galvanized Iron Primer " " 30)	400-500
FINISHING	CE-CO Bridge Paint, various shades (page 37)	500-600
	CE-CO Utility Paint, various shades (see page 24)	500-600
	CE-CO Fume Resisting Exterior Paint, various shades (page 28)	400-550
	CE-CO Fume Resisting Interior Paint (page 28)	400-550
	CE-CO Carbon Paint, various shades	500-750
	CE-CO Graphite Paint, various shades	500-700

THE PRIMING COAT—We emphasize the importance of the priming or shop coat. Satisfactory protection of steel depends as much, or more, on the nature of the priming coat as on the finishing coat. The function of the priming coat is not only to assist in excluding (so far as possible) moisture and gases which tend to corrode, but also by its chemical and physical properties, to exert a positive neutralizing action against the formation of rust and the spread of any pitted corrosion underneath the paint film. Since it is to serve as the foundation coat for all subsequent painting and repainting coats, its quality should be of the best, and those purchasing new steel will provide for a considerable saving on maintenance work by specifying definitely by name one of the priming coats listed above, otherwise the contractor may figure on using inferior paint designed mainly for competition, which will result in expensive cleaning and repainting work within a short time.

Primox is recommended as an economical and effective rust inhibitive primer for general steel structures not requiring the special features of No. 250 and No. 255. It combines the high quality, durability and economy of No. 31 Im-



Ticonic Foot Bridge, Waterville, Me. In spite of bad conditions, due to fumes from Hollingsworth & Whitney Co.'s pulp and paper mill (background). Ceco Bridge Paints Nos. 250 and 16 gave 7 years good protection. Newlite interior white is used by Hollingsworth & Whitney Co.

ported Red Oxide (see page 35) and extra rust inhibitive qualities derived from chromates and other strong inhibitors incorporated in it.

No. 250 is particularly recommended for priming steel containing pitted corrosion as it checks the spread of rust under the paint film. Also for steel subjected to strong sulphurous and other rust promoting gases.

No. 255 is especially valuable for conditions for which No. 250 is prescribed plus heavy moisture. See pages 6 and 7.

Steel Structures with no extraordinary conditions may be primed with No. 31 Imported Red Oxide with excellent results. See page 35. Its use for many years as a primer on bridges by the Pennsylvania, New York Central and other railroads is indicative of its sterling good qualities.

THE FINISHING COATS—One or two finishing coats, depending on the nature of the work, are required. Our paints are correctly designed for long service and economical upkeep, and to protect metal against practically any condition. In addition to the paints listed above, we furnish other special paints for special requirements. Numerous manufacturing concerns are using, with satisfaction, our paints formulated to combat some particularly troublesome condition (see page 15).

Sulphurous, Acid and Other Fumes

It is advisable to inform us in detail concerning the particular conditions which are to be met in such cases, in order that we can make a recommendation based on a knowledge

Metal
Preservation
Priming
Finishing
Fumes, Acids
anks (interior)
enstocks, Etc.
Steel in Masonry
Galvanized Iron
Stacks, Boilers
as Holders, Etc.
Stain Preventive
Bituseal
Creosote Sealer
ampsealer
1 Imp. Red
Oxide
Carbon Black
ridge Paint
Aluminum Paint
Zone Paints
oof Coating
Cecotite
Boiler Settings
Machinery Paint
Pipe Paints

of the conditions. As a broad, general recommendation for these conditions, however, it may be stated that No. 31 Imported Red Oxide and No. 116 Carbon Black Paint have both been found to be very serviceable paints (see page 35). For instance, several sulphite pulp mills, chemical works and smelting companies have adopted these paints after thorough service tests.

Attacks of exceptional severity from acid gases should be met with our Exterior or Interior Fume Resisting Paint. No. 1625 Black Fume Resisting Paint is most effective against conditions of extreme severity from gases. Fume Resisting Paint is furnished also in Gray, Red, Brown and other shades, and in White. Fume Resisting Paint should be used generally over a priming coat of No. 250 Sublimed Blue Lead.

Where direct contact with liquid acids or fairly strong alkalies is experienced, No. 1725 Acid & Alkali Resisting Black gives best results, to be used over our Acid & Alkali Primer which is specially made for this work.

We also supply Acid & Alkali Resisting Paint in various shades in addition to black. Complete details of your conditions are requested for the purpose of specific recommendations.

Interior of Tanks

Interior of tanks for storage of water are best protected from rust pitting by the application of No. 255 Red and Blue Lead Primer or our Suspended Red Lead, followed by No. 31 Imported Red Oxide or No. 500 Hydraulic Black.

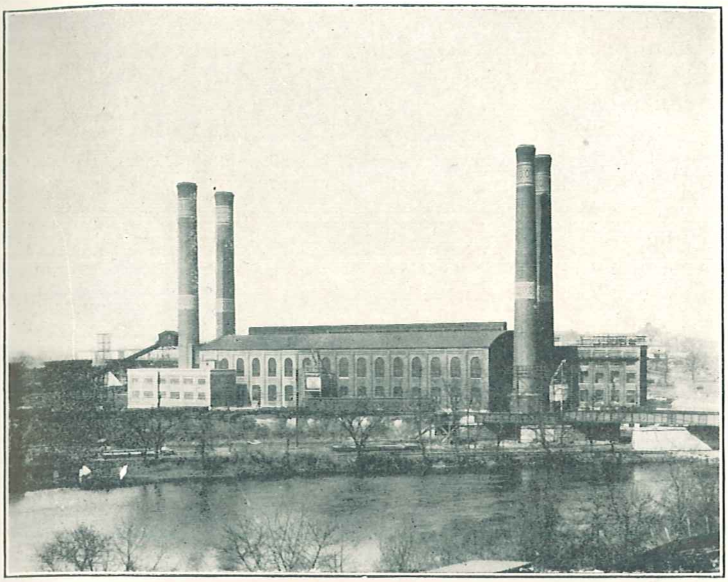
Drinking water tanks may be finished, after priming, with a coat of CE-CO White Enamel Undercoating and a coat of CE-CO White Enamel. These white paints contain no lead.

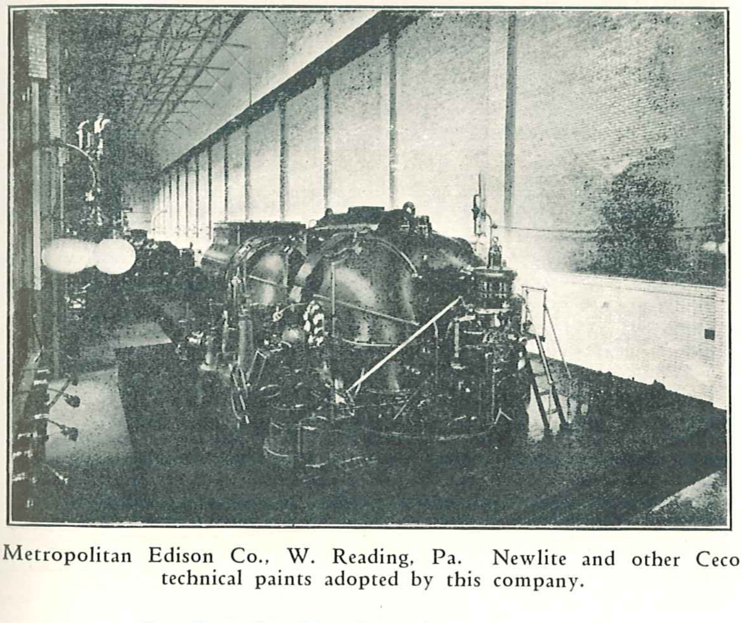
In painting inside of tanks, provide means for good ventilation for drying surfaces prior to painting and hardening of each coat, also for the health of workmen. Paint must have circulation of fresh air for proper hardening.

Penstocks, Wheel Pits, Etc.

Leading power companies have used our Penstock Paints for many years. On exposed work, No. 300 Suspended Red Lead or No. 255 Red and Blue Lead Primer, followed by our No. 700 Red Lead and Graphite Penstock Paint, will give results unsurpassed by any other combination of paints. For New Penstocks, use No. 300 Suspended Red Lead for priming coat, followed by No. 701 Red Lead and Graphite and a final coat of No. 700 Red Lead and Graphite Penstock Paint. No. 500 Hydraulic Black, for underground or submerged work, gives excellent results as a final coat.

Penstock Paint also furnished in gray and other shades.





Metropolitan Edison Co., W. Reading, Pa. Newlite and other Ceco technical paints adopted by this company.

Steel to be Enclosed in Masonry

SHOP COAT	Structural Red or Brown No. 31 Imported Red Oxide Primox.
FIELD COAT	No. 755 Subway Black Structural Black Asphaltum

Tanks (interior)
Penstocks, Etc.
Steel in Masonry
Galvanized Iron
Stacks, Boilers
as Holders, Etc.
Stain Preventive
Bituseal
Creosote Sealer
ampsealer
1 Imp. Red
xide
ridge Paint
Aluminum Paint
one Paints
oof Coating
ecotite
Boiler Settings
Machinery Paint
Pipe Paints

When steel is to be bricked in or encased in masonry, it should be painted at the fabricating shop to prevent rusting until it arrives at the job, is erected and covered by the masonry. If the engineer is satisfied that the encasing shell of concrete is of sufficient thickness and density to insure against admission of any moisture and oxygen, and there is no danger of electrolytic corrosion due to stray currents, he may consider the steel sufficiently protected. Should any rusting start, however, due to leaks, electrolysis, etc., the encasing shell will be cracked. It is our opinion, and that of many engineers, that the application of a suitably designed field coat paint after the steel is erected, is an advisable precautionary measure well justified by its slight expense compared with the benefit derived.

The paints listed are especially designed for this work.

Where protection against rust for a limited time until the steel is enclosed is desired, Structural Red is recommended as an effective and economical preservative. If a permanent protective paint coating of greatest durability is sought, either No. 31 Imported Red Oxide or Primox may be used for shop coat, with a field coat of No. 755 Subway Black or Structural Black Asphaltum. No. 755 is a free-spreading pigment paint which dries with a rough flat finish, bonds strongly with concrete, and is immune to free lime. As No. 755 is an insulator it protects against corrosion from electrolysis.

Plant of Brown-Lipe-Chapin Co., Syracuse, N. Y.
Another user of Ceco Paints
(c) Fairchild Aerial Surveys, Inc., N. Y. C.

Painting of Galvanized Iron

Ce-Co Galvanized Iron Primer

CE-CO Galvanized Iron Primer is designed especially for use on new or old galvanized iron, and will give a coating that is not only very durable, but which will adhere firmly to the metal.

It can also be used for the finishing coat with excellent results, or any of our standard paints can be used over it without fear of peeling.

It is recommended on buildings which are subjected to fumes which are injurious to linseed oil paints. It is more resistant to sulphurous and dilute acid fumes combined with moisture than ordinary linseed oil paints.

Ce-Co Galvanized Iron Primer is furnished in several shades, the standard being a medium gray, No. 625.

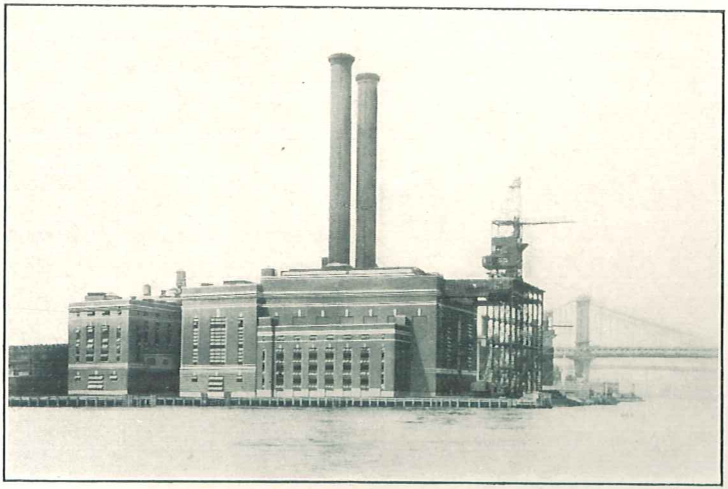
Spreading rate about 500 sq. ft. per gallon, one coat.

Stacks, Boilers and Flues

No. 750 High Heat Black
No. 340 Graphite Stack Paint
No. 116 Carbon Stack Paint
Gray, Red, Brown & Buff Stack Paints

FOR the painting of stacks, hot flues, boiler fronts, and other surfaces which are subjected to heat, we recommend the above paints.

No. 750 High Heat Black successfully withstands a high degree of heat. It gives good results on stacks which become



The largest steel stacks in the world, 350 ft. above grade, 24 ft. diameter, protected with No. 750 High Heat Black. First completed section of Hudson Ave. Super-station, Brooklyn Edison Co., Brooklyn, N. Y. Several hundred gallons of other Ceco paints used on this station.

Galvanized Iron
Stacks, Boilers

heated to not more than 600° F. A measure of service will be obtained at somewhat higher temperature, depending on the severity of the condition. It should be used on boiler fronts and hot flues. Nos. 116 and 340 and the colored stack paints will produce good results at temperatures of not more than 300°. These have greater resistance to straight weather conditions than No. 750 and consequently are preferable for low temperature stacks exposed to weather.

No. 750 should be spread about 400 sq. ft. per gallon, one coat; Nos. 116 and 340 about 450 to 500 sq. ft., and Colored Stack Paints about 400 sq. ft. per gallon.

Gas Holder Paints

		Recommended spreading rate sq. ft. per gal, 1 coat.
PRIMING	No. 255 Red & Blue Lead Primer (see page 27)	450
	No. 250 Sublimed Blue Lead (see page 27)	500
	Suspended Red Lead " " 6	400
	Primox " " 26	500
FINISHING	CE-CO Gas Holder Paints, various shades	400-600
	CE-CO Lower Lift Paints, various shades	500-600

The protection of gas holders requires paints made especially for the purpose. The paint must resist not only weather conditions, but withstand alternate wetting and drying, vibration, impurities in the water, and gases.

We supply holder paints in all practical shades. The same special elastic oils and waterproofing binders are used in all shades. To these special liquids, which are the result of over 50 years continuous manufacture of paints for holders, is largely due the superior service produced by our CE-CO Holder Paint. The correct balance between solid and liquid components and the character and treatment of the pigments also are important. Our Lower Lift Paints are designed for extra resistance to cup oil and specially quick drying.

No. 31 Imported Red Oxide Holder Paint remains, after half a century, unbeaten for durability and economy. It has a rich tone, and where a red is permissible, is recommended for unexcelled service.

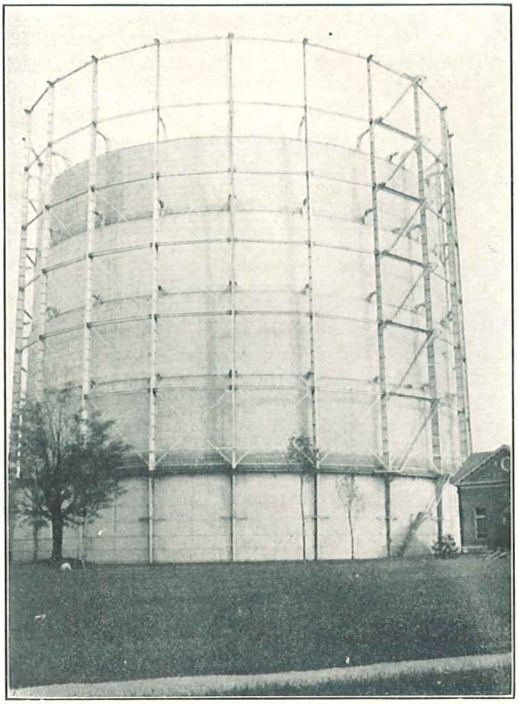
Our Stainless Drab is increasingly popular. Its neutral light brown color minimizes appearance of sediment stains on lower lifts and makes the holder less conspicuous. We have supplied thousands of gallons of it to leading gas companies.

Low Visibility Gray and other gray shades are also attractive. Greens for tanks and frames, and Black for relief holders.

To get the best results from painting, all bare metal must be suitably primed. We recommend one of the primers mentioned above. No better results can be obtained than by the use of No. 255 which most effectively checks pitted corrosion and is economical and easy to apply as well (see page 27).

Other Gas Plant Specialties

No. 116 Carbon Black, for coal trestles, etc.
Generator Paints—All shades including Aluminum
Meter Paints & Enamels
CE-CO Engine Enamel—see page 40.
Sulphur Resisting White—see Newlite, page 16.
Painting over Tar—see Bituseal, below.
Stack Paints—see page 31.



Rochester Ry. and Lt. Co., Rochester, N. Y.. Brighton Holder, 6,000,000 cu. ft. Erected 1915 and painted with another brand of paint. Repainted 1917, and again in 1922 with Ceco 300 Red Lead Primer and Light Gray Holder paint. Partly repainted with same paints 1925.

Gas Holders, Etc.
Stain Preventive
Bituseal
Creosote Sealer
ampsealer
1 Imp. Red
xide
Carbon Black
ridge Paint
luminum Paint
one Paints
oof Coating
ecotite
oiler Settings
achinery Paint
ipe Paints

Stains from Oil, Asphalt, Tar and Creosote.

Bituseal—Newlite
Ceco Creosote Sealer—Newlite

NEWLITE Interior White, or tinted finish, can be successfully used over surfaces coated or stained with asphalt, tar and other bituminous materials, if used in conjunction with our Bituseal. The latter is a special pigment paint designed to prevent stains from these materials which produce an unsightly discoloration of ordinary white or light colored coatings.

On interior work, one coat of Bituseal Interior is usually sufficient to completely prevent stains from bituminous materials of a firm-body nature. It should be allowed to dry for 48 hours and followed by one or two coats of Newlite in finish desired (See page 16). On exterior work, use Bituseal Exterior, followed by CE-CO Utility Paint (See page 24) or one of our other standard exterior paints. Two coats in addition to the Bituseal are usually desirable on exterior work.

Surfaces which are rough or otherwise difficult to cover may require two applications of Bituseal whether interior or exterior work.

Oil or **Grease** stained wood or masonry can be successfully painted by washing with gasoline to remove surface oil or grease and then applying Bituseal, followed by Newlite White or tinted.

Many **Creosote** treated interior surfaces can be successfully decorated with Newlite by first applying one or two coats of our Ceco Creosote Sealer followed by Newlite. This coating provides a white or tinted finish which will successfully resist staining action of the creosote if the latter is not present in too great amount or too freshly applied. We recommend that a panel be painted as a test before extensive painting is done on creosote treated lumber. For exterior surfaces exposed to weather, we suggest writing us with complete details of conditions, kind and color of finish desired, for recommendations.

Dampsealer

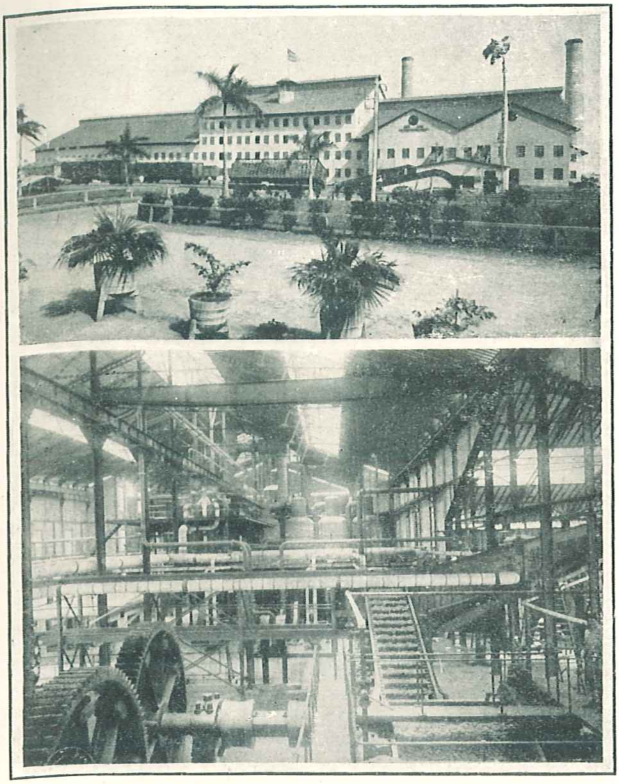
Heavy Body
Light Body

THIS is a high grade treated asphalt paint designed for maximum resistance to moisture. Its use on masonry and other surfaces prevents moisture of condensation from striking through the coating which would make active the free lime. Such a condition is destructive to oil paints. Slight moisture, free from pressure, coming through a wall or ceiling from behind the paint is also effectively checked by Dampsealer.

Dampsealer, followed by Bituseal and Newlite, gives a white or tinted coating of maximum resistance to moisture and stands in many places where all oil paints fail. See pages 33 and 16.

Dampsealer furnished in heavy body for very porous masonry and light body for surfaces of low porosity.

Surfaces must be as dry as possible so Dampsealer can penetrate deeply into the pores and seal them.



One of many sugar mills in Cuba which use our special paints for the tropics.

No. 31 Imported Red Oxide

THIS paint, which is one of our oldest and most extensively used products, is suitable for a wide range of work. As a general utility paint for industrial plants, it is unsurpassed. It combines great durability and moderate cost. Its color is an exceptionally rich shade of red, which is retained throughout the life of the paint.

No. 31 Imported Red Oxide is suitable for exterior or interior work, and for use in the protection of steel, iron, or wood surfaces. It stands well on brick and excludes moisture and frost. Sulphur gases and dilute acid and alkaline fumes do not affect it. Where severe fume conditions occur, our special Fume Resisting Paints should be used, see page 27.

No. 31 Imported Red Oxide is suitable for both priming and finishing coats on metal or wood.

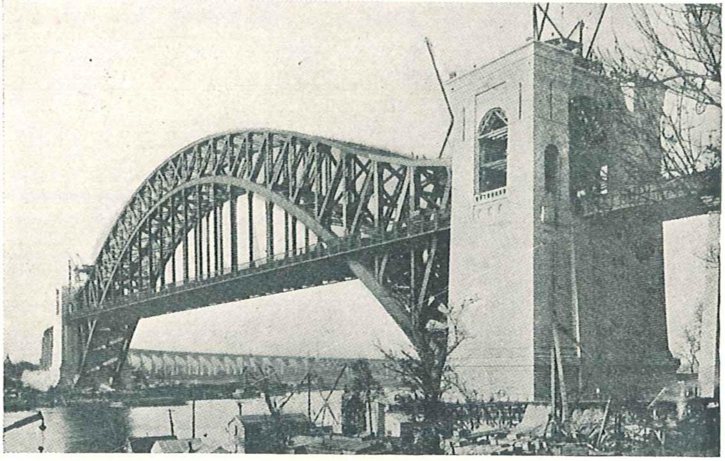
No. 31 should not be confused with ordinary iron oxide paints. It is superior in every way. The selected pigments and the special binders which we incorporate in the vehicle, and the scientific and careful methods of manufacture, all contribute toward the excellent results which our customers derive from it. We recommend it as a highly satisfactory and economical protective paint for general use where a red paint is permissible.

No. 16 Carbon Black

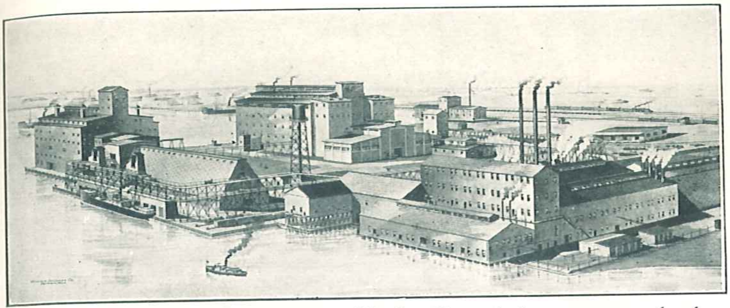
Like No. 31 Imported Red Oxide, No. 16 Carbon Black is a protective paint of great merit for the protection of steel and iron structures, and has a wide scope of usage. Developed as a high grade bridge paint nearly fifty years ago it has stood the test of time. It is a standard bridge finishing paint of leading railroads, some of whom have used it for more than thirty years.

Any exposed steel structure is well protected from the weather if coated with No. 16 Carbon Black. It gives excellent results in atmospheres of industrial communities where sulphur and other destructive gases are present. It is in extensive use by industrial plants for miscellaneous steel and iron work and is highly recommended for general exterior or interior work, as a finishing coat.

Bare steel should be primed with one of our steel primers (see pages 26, 27) before applying No. 16 Carbon Black.



Hell Gate Bridge, N. Y., N. H. & H. R. R., New York City. Completely repainted 1924-25 with Ceco bridge paints, both priming and finishing. Just one of the important railroad bridges protected by our paints.



American Cyanamid Co., Warners, N. J. One of the concerns who have used No. 31 and other Ceco technical paints for many years

CE-CO Bridge Paint

THIS paint is the result of over 50 years' experience. It is scientifically designed for priming and finishing coats, correctly balanced for elasticity, exclusion of moisture and rust promoting gases, and long life.

CE-CO Bridge Paint is furnished on carbon, graphite, iron oxide, red lead, sublimed lead, and other pigment bases in various shades.

Aluminum Paint

Interior Aluminum Paint.
Exterior Aluminum Paint.
Heat Resisting Aluminum Paint.
Fume Resisting Aluminum Paint.

Our aluminum paints are designed for service on any class of work. These paints are ready for use and eliminate the handling of aluminum powder and mixing. The special vehicles employed in the various formulas provide binders which insure the maximum durability under the conditions encountered.

In painting steel and iron, we advise the usual cleaning and a priming coat of our No. 251 Light Sublimed Blue Lead Primer before application of the Aluminum Paints.

Its low absorption of heat makes CE-CO Aluminum Paint desirable for final coat on exposed tanks containing light oils, transformers and other work where it is desirable to minimize absorption of heat from the sun. CE-CO Heat Resisting Aluminum Paint also helps to conserve heat in retorts, etc., as it is a poor radiator of heat.

Zone Marking Paints

White, Yellow, Etc.

For marking zones on street pavements, floors of

16 Carbon Black
Bridge Paint
Aluminum Paint
Zone Paints

oor Coating
ecotite
oiler Settings
achinery Paint
ipe Paints

industrial plants, etc., for guidance of traffic. White has been most frequently used. Our standard yellow is recommended for brilliance, visibility at night and in fogs, and service. Other colors as well. Ready for use or in paste form. Dry quickly and resist staining from asphalt and oil.

Cecotite Coating

Liquid and Plastic
Colors—Black and Maroon

For Waterproofing Roofs, Gutters, Leaders; Sealing Boiler Settings; Setting Glass, Steel Sash, etc.

It stops the Leaks

ORDINARY PAINT makes a coating this thick, one coat.

CECOTITE Liquid makes a coating this thick, one coat, when one gallon is spread over 100 sq. ft.

CECOTITE Liquid may be spread on this thick, one coat, if desired and will then cover about 50 sq. ft. per gallon.

CECOTITE Plastic may be spread on with a trowel this thick or thicker, if desired.

Superior Composition. CECOTITE is made with asbestos, refined natural asphaltum, and special oils which give it elasticity and long life. CECOTITE contains no tar or inferior materials of any kind. It is a high grade article made in a high grade way by responsible paint manufacturers of standing. Our reputation is behind it.

Saves Money for property owners by making old roofs waterproof and serviceable, and saving expensive roofing renewal.

Stops the Leaks. It runs into, and fills up, the holes, cracks and seams, and stops the leaks.

A Continuous Elastic Coating is formed by CECOTITE. It leaves no open seams, nail holes, or other means of entrance for the weather. CECOTITE not only stops all leaks, but preserves the good parts of the roof from decay.

Not Inflammable. CECOTITE on your roof, when dry, will not support combustion. Sparks, cinders, lighted matches will not set it afire and it tends to protect inflammable roofs from ignition.

Applied Over Any Surface. CECOTITE Coating may be used on any kind of roof, including felt, paper, composition, gravel, metal or concrete.

Will Not Run. CECOTITE will not run in warm weather. It stays where it is put, and may be used on a slanting or vertical surface.

Ready to Use. CECOTITE does not require heating nor any other treatment. It is ready to use as it comes from the package. In cold weather it will facilitate spreading to warm to ordinary room temperature.

For Trowel and Brush Application. CECOTITE Plastic is for trowel application. CECOTITE Liquid (contains asbestos) and CECOTITE Felt Liquid (does not contain asbestos) are spread with a long handle roofer's brush.

Boiler Settings. CECOTITE applied to masonry boiler settings seals the pores and crevices, increasing the efficiency of the furnace.

As a Cement. CECOTITE Coating will bond to any kind of surface, and is very useful for repairing numerous things requiring a waterproof and weather resisting elastic cement. CECOTITE Plastic is especially recommended for this purpose.

Setting Glass and Steel Sash. CECOTITE Plastic is superior to putty for setting glass in industrial plants, especially where sulphur and other gases are present. Retains its elasticity, excludes moisture and gases, and prevents corrosion of steel sash. Maroon or Black colors. Is also suggested for stopping spaces between steel sash and the building, thereby preventing corrosion at the back of the sash frame.

How to Use CECOTITE Coating. CECOTITE Coating is very simple to use. In the liquid forms, it is simply spread over the roof or whatever surface is to be waterproofed, with a long handle wide roofer's brush. Spread it on thick, so it will run into and cement up all the small holes and cracks. Large holes, cracks and seams should first be filled up or repaired with CECOTITE Plastic Coating put on with a trowel or knife. Smooth down edges and round off corners of the coating. Then brush on the CECOTITE Liquid or CECOTITE Felt Liquid over the entire surface. This will stop all the leaks and protect the good parts of the roof from decay.

Large holes or breaks can be bridged by coating surrounding parts with CECOTITE Plastic. Allow to set and press on a piece of canvas or small mesh wire netting; then put on a heavy coat of CECOTITE Plastic and proceed as for the rest of the roof.

Barrel Paints

THE painting of barrels and other packages has a distinct advertising value. A clean smooth painted package makes a favorable impression. Many concerns use distinctive colors which identify their products.

Furnished all ready for application or in paste form.

Machinery Paints

Machinery Finishes, all colors: Flat, Eggshell, and Gloss.
Iron Filler, Sealer and Undercoats.
CE-CO Engine Enamel and Undercoating, all colors.

OUR Machinery Paints, which we furnish in flat, eggshell and gloss finishes, and in all shades, are in extensive use. We give close attention to the paint requirements of manufacturers of machinery and can assure uniform satisfaction and reasonable prices.

Our Machinery Paints can be applied by spraying process or brushes.

CE-CO Engine Enamel (all colors) is a high grade heat resisting, oilproof enamel for first-class work. Especially recommended for power plant machines and turbines.

Iron Filler is for surfacing rough castings, and Sealer and Undercoats for extra surfacing and to hold out the finish of final coat.

Paints for Service Pipes

EXPOSED pipes in manufacturing plants require painting, not only for their protection, but also in order to mark them with distinguishing colors which will indicate at a glance the nature of the contents of each pipe.

CE-CO Pipe Enamel is furnished in all colors, and should usually be used over a priming coat of our Primox or No. 250 Sublimed Blue Lead.

CE-CO Pipe Enamel is resistant to moisture and most fumes. If the latter are of great severity, it is best to inform us in detail of the condition so that special treatment may be recommended if necessary.

Vermilion, Green, Blue, Yellow, Black, French Gray and White are usually used as marking colors for pipe lines.

Underground Pipes should usually be protected with CE-CO Asphalt Pipe Coating. A priming coat as recommended on page 26 will improve the preservation of pipes.

PURE WHITE

NEWLITE

WASHABLE PAINT